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ORIGINAL ARTICLES.

SODIUM CHLORID A POSSIBLE CAUSE OF SOME OBSCURE DISEASES OF THE CHOROID AND THE RETINA.*

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In the 1911 edition of his "Textbook of Physiology" Howell says, "Sodium chlorid occupies a peculiar position among the inorganic constituents of our diet, in that it is the only one which we deliberately add to our food." "It is employed as a condiment for its pleasant flavor, and it is possible that its use if often carried to excess. It can be shown, in fact, that by increasing the intake of salt an œdematous condition of the tissues may be produced, owing to the fact that the salt increases the osmotic pressure in the tissues. So, also, in conditions of œdema or inflammation, restriction of the salt of the diet may give the contrary result and help to restore the tissues to a normal state as regards their water contents."

Bartholow remarks, in the discussion of the physiological action of sodium chlorid (*Materia Medica and Therapeutics*, 1881 edition), "The importance of this salt in the animal œconomy is doubtless the cause of its universal taste; all in excess of the needs of the body is excreted, chiefly by the kidneys, and with such facility that no accumulation takes place. While a necessary amount is of high importance and excess is readily disposed of, it is probable that long and habitual indulgence in a considerable excess increases waste and lowers the vital forces."

*Read before the St. Louis Ophthalmological Society, May 25, 1914.

In his "Materia Medica, Pharmacy and Therapeutics," 8th edition, 1901, Potter says, "Sodium urate is not soluble like the urates of lithium and potassium, and is therefore much less readily excreted, forming the masses called chalk-stones in gouty subjects." "Sodium chlorid (common salt) is one of the most important and abundant of the saline constituents of the animal organism, existing normally in the blood, where it keeps the fibrin and albumin in solution." "In very dilute solution it enables water to dissolve both albumins and globulins, and renders water non-irritant to the animal tissues and harmless to the red blood corpuscles." "When absorbed in excess of the normal requirements of the body, it causes the peculiar nervous irritation expressed by the sense of thirst; which is relieved only by the ingestion of water in sufficient quantity to enable the excess to be dissolved and excreted by the kidneys. It is rapidly absorbed, and rapidly excreted; and when consumed in excess it increases tissue-change and consequently the excretion of urea and potassium salts."

From the above opinions of eminent therapeutists and an eminent physiologist, it is evident, that while a certain quantity of sodium chlorid is essential to the life of the animal tissues, it is possible for it to become detrimental when indulged in excessively. Clinical data that I have collected through a series of years point strongly to this being true in certain grave forms of retinal and choroidal disease, and the facts are presented with the hope of stimulating further inquiry into the subject.

The first instance was seen early in my ophthalmic experience. Unfortunately both the name and the date of the record have been misplaced. The patient was a male about 40 years old, and came because of blindness in the right eye and frequent blind attacks in the left until vision had almost entirely failed. The ophthalmoscope showed an old separation of the retina, with hæmorrhages, and old choroid atrophic spots in the right eye. In the left eye there were numerous large recent retinal hæmorrhages. A general examination revealed no cause for such extensive disturbance in the eyes, but in this examination several spots in the skin of the forearm and the face were observed that resembled the milder spots which are seen in purpura. Also in the answers with regard to stomach trouble, the patient said that during the last 18 months he had suffered a great deal with "heart-burn" after his meals, which he relieved

by taking from one to two teaspoonsful of salt in a glass of water. To me there seemed to be some connection between this salt for "heart-burn", the purpura-like spots and the retinal and choroidal mischief; but I could find nothing in the literature to confirm such an opinion, except in connection with true purpura.

The impression that the excessive use of sodium chlorid in this case was an important factor in the production of the blindness has remained with me, and on April 24th, 1913, a similar case came to my notice, in which there was an extensive retinal separation in the left eye of long standing, and a recent separation in the right eye that was preceded for a number of months by intervals of blindness, probably retinal hæmorrhages. The patient was apparently a healthy individual, had never suffered with venereal trouble, was not addicted to alcohol or tobacco; in fact, had been a total abstainer from alcohol, but had suffered for many years severely with rheumatism. So far as he knew there was no tubercle in the family, which consisted of three other brothers and two sisters living, all of whom were rheumatics, but none had poor eyes. When questioned as to salt, he said that he had always freely indulged in salt and salty food, also his brothers and sisters and his mother. The mother died of rheumatism.

Another instance, March 28th, 1914, seen in consultation with Dr. Henderson, was a man of 62, who declared that he had never had occasion to consult a physician until three years ago, when his vision began to fail. The physical condition of the patient indicated that he was truthful in his statement. He was practically blind from a choroiditis disseminata and glaucoma. Questioned as to his taste for salt, he said that he had always indulged in it excessively because he had the impression that "it was good for people to eat plenty of salt." The father had died in his 80th year and the mother in her 88th year. Both had good eyes. He and a brother were the only children. The brother has good eyes. The patient himself is the father of two children, both adults, neither of whom suffer with eye trouble.

April 18th, 1914, a young man, a glass blower, consulted me because of loss of vision in his right eye, detected the previous November in attempts at markmanship. He found he could see only in the lower half of the field. Lately the eye had become totally blind. An examination revealed a total separation of the retina in the right eye. In the left eye the vision was

normal, but throughout the central portion of the retina there were numerous scintillating points, evidently cholesterin crystals, probably resulting from minute hæmorrhages, and in the temporal portion of the fundus there was an old retino-choroidal atrophic spot nearly the size of the disk. There was nothing in the patient's history to account for the disturbances, except that three years previous to the eye trouble he had acquired the habit of taking salt in his beer, about one-fourth of a teaspoonful to each glass, and he would ordinarily drink from 6 to 12 glasses during the day. After a year he gave up the beer drinking, but the taste for salt had become so fixed that he continued its use freely in all the food that he ate.

These four cases have seemed to be directly dependent on the salt-eating habit. Their history has led to an inquiry into other analogous cases, some of which have been under observation for a number of years, with little, if any, benefit from any line of treatment. One of these, Mr. T., came because of myopia in his 16th year. His father was also a myope with good vision. There are others in the family who suffer with myopia of the non-malignant type. Several years ago Mr. T.'s fields began gradually to shrink and a careful examination of the peripheral portion of each fundus showed a choroiditis disseminata, very peripheral. This progressed and in the right eye was followed by separation of the retina in 1908, his fortieth year. Last fall a central retino-choroidal infiltration appeared in the left eye. It was then that he was questioned as to his salt-eating propensity. The answer was, that he had always been an intense lover of salt, eating it abundantly with every variety of food, "always wanted enough salt for it to be seen on the food." Also he has always been a great sufferer from rheumatism, for which, his physician tells me, no definite cause could be found. He has stopped the salt and the rheumatism has practically disappeared.

Another similar case is Miss G., from a family of myopes. In November, 1913, she complained of not seeing well with the left eye. This reduction in vision was caused by a central retinal hæmorrhage. Recently she returned because she thought the vision was worse. Several rather large retino-choroidal atrophic spots were found in the peripheral portions of each fundus. Inquiry elicited that she had always indulged freely in salt, regularly resalting the food at the table.

Another is a mild case of albuminuria, which has been under observation for thirteen years, with repeated retinal hæmorrhages and an old retino-choroidal scar in the right eye. Her answer to the salt inquiry was, "I am exceedingly fond of salt; always resalt all my food at the table. I have always done this. I can remember running round the table in my childhood and taking pinches of salt from the salt dishes of the older people."

Another, a physician, age 64, came because of sudden loss of vision in his left eye. He has a neuro-retinitis with numerous hæmorrhages. Says he suffers with a mild albuminuria. Thinks he eats very little if any more salt than is ordinarily used, but takes it during the summer for intestinal trouble, and recommends it to his patients, because he thinks it is "good for them," and he "never knew it to harm any one."

Two other striking examples are in a physician's family, which consists of father, mother and two adult sons. The father, in his 80th year, with a myopia of 3.5 D., R. and L., has normal vision in each eye with the correction, although there is a trace of marginal striated lens change in the left. A son, in the thirties, has good eyes except for a moderate grade of astigmatism. The father, commenting on the habits of the family with respect to salt, remarked, "We always had separate food for my wife and my older son because they wanted theirs so salty that my younger son and I could not eat it." The mother's left eye was injured by scissors in early childhood with resulting lens changes and loss of useful vision. When first seen, May 20th, 1908, age 70, her vision with —1. sphl. was 20/30. May 14th, 1914, the myopia had increased to 4 D., and in the macular region are minute retino-choroidal changes such as follow small retinal hæmorrhages. The vision is 20/48 with the best correction.

The older son's vision began to fail eight years ago from chronic glaucoma. Iridectomy was performed on each eye, but the disease has progressed to practical blindness. The mother states that both she and this son have always indulged freely in salty food because they were fond of it and because she thought it was good for them.

Another interesting family history is in the case of a young lady, a patient of my colleague, Dr. Post, twenty-nine years of age, who has been the only lover of salt in the family of six, one brother and two sisters all older than she is, and the father and

the mother, all living and all free from rheumatism or any disease of the eyes. From childhood she has resalted her food, and about four or five years ago she began to substitute it for butter on the bread and on other food proportionately. On the 18th of January, 1911, she had an attack of sciatica, with which she was bedridden for two months, and which continued until the following September. In 1912 she suffered another attack for two months. In 1913 she was troubled with inflammatory rheumatism in both feet, for which she was in casts for two months and was in bed for two months. In February, 1914, the left eye developed an iritis, for which she is still under treatment. Lately a choroidal infiltration may be seen in the extreme temporal portion of the fundus and there is a mild neuro-retinitis. This patient also gave a marked von Pirquet reaction, which points to tubercle, although there is no history of tubercle in the family.*

To these could be added a long list of other cases in which the excessive indulgence in sodium chlorid has apparently been a factor in aggravating diseases of the choroid or retina. This action of salt may be accounted for in the anatomical fact that the vessels of the choroid and of the retina are the smallest in the human body, and in the case of any form of poison which would affect the bloodvessels, there is a strong probability that these would be among the first to be attacked.

*Just previous to the reading of this article the patient last mentioned stopped the use of salt. Also, tuberculin has been administered, with only a trace of reaction. The choroiditis has nearly disappeared, the vitreous is almost clear, and there has been no return of the iritis.

MEDICAL SOCIETIES

FIFTIETH ANNUAL MEETING OF THE AMERICAN OPHTHALMOLOGICAL SOCIETY.

HELD AT HOT SPRINGS, VA., MAY 12 AND 13, 1914.

Reported by Miss Lulu Gay, Philadelphia.

[*Continued from June issue.*]

Preliminary Capsulotomy in the Operation for the Extraction of Immature Cataract.—DR. HOWARD F. HANSELL AND DR. C. E. G. SHANNON.

DR. C. E. G. SHANNON, Philadelphia, Pa.: My experience in the practice of the operation suggested by Homer C. Smith, is that in the majority of the cases the lens failed to come away complete, and the cortical remnants were removed by irrigation or later operation. In all cases, except two, the capsule was divided with the Ziegler knife needle; in the last two, the division was made with Smith's specially devised knife. The authors have not found the method superior to other recognized procedures in the extraction of immature cataract, but believe from the favorable results obtained by Smith that the procedure is worthy of further trial.

DISCUSSION.

DR. PYLE: I want to add my tribute to the very real value of dionin in aiding the absorption of retained capsular fragments.

DR. HIRAM WOODS, Baltimore, Md.: An experience of mine with the older Smith operation bears out the contention of Smith that the preliminary capsulotomy is efficacious in getting rid of any soft lens substance; for, in the first three cases, I had no evidence of it. In the case in which the preliminary capsulotomy was not done, however, there was considerable soft lens substance to be irrigated.

DR. GREENWOOD: I have tried this method in only two cases. The first was one of high myopia, with nuclear cataract. I performed the Homer Smith operation. The thing that struck me was the easy way in which the lens was expressed on the following day. It came out looking as if it were in the capsule, so smooth and in such good condition. In the second case there was a small amount of cortical remnant. The first patient obtained 20/20 vision, without subsequent trouble.

DR. ZIEGLER: If we wait at all over the period of six or seven hours, we have the question of a shallow anterior chamber to contend with, which makes it a dangerous procedure. We had better call this operation a preliminary cystotomy, rather than a preliminary capsulotomy. I think that it is a valuable procedure, with which we may be able to help out a number of our patients who require relief—especially immature cases.

DR. SHANNON (closing): I might say in answer to Dr. Wood, that in none of our cases was there any untoward effect, either immediately or within twenty-four hours. We do not feel convinced entirely in regard to the value of the operation; but we think that the procedure should be further tried, and its value definitely proved, if possible. In thirty per cent. of our cases capsulotomy or cystotomy was omitted. In approximately fifty per cent. no secondary operation was necessary, and I might add that the visual results were good in all cases except one. We used dionin in practically all cases, and found it exceedingly advantageous in all of them. In thirty per cent. of the cases a preliminary iridectomy had either been done previously, or was done during the extraction operation. We found it helpful. With regard to Dr. Ziegler's reference to shallowness of the anterior chamber, I would say that in our experience, I do not recall any case in which such a difficulty was encountered.

Exhibition of X-ray Plates. Two Cases of Cranial Deformity Associated with Post-Neuritic Atrophy.—DR. T. B. HOLLOWAY, Philadelphia, Pa.

The first patient was a male, aged eight years, with cranial deformity; exophthalmos; divergent squint; post-neuritic atrophy and nystagmus. The X-ray plates showed the characteristic findings, seen in cases of tower skull. The second patient was a female, aged thirty-five, with cranial deformity, exophthalmos, divergent squint, and post-neuritic atrophy. The X-ray plates showed changes similar to those in case one, but more pronounced.

DISCUSSION.

DR. LAMB: I should like to ask one question; and that is the relative position of the clinoidal spinous processes in these cases, as compared with the normal. I should also like to know whether they leaned away from one another.

DR. HOLLOWAY (closing): The optic foramen and the optic

nerve are brought into relation with the clinoidal spinous processes through the distortion of the two roots of the wing of the sphenoid. I cannot recall whether or not the two processes leaned away from one another.

A Case of Melanosis of the Conjunctiva.—Dr. Randolph.

The patient is a woman, aged fifty, with melanotic areas in the lower part of the conjunctival sac. The right caruncula is entirely black, while the left caruncula is partly black. Her family have always noticed the peculiarity.

DISCUSSION.

Dr. George E. de Schweinitz, Philadelphia, Pa.: I have a patient, now nearly seventy years of age, who has marked bilateral pigmentation in both conjunctival sacs, with patches in the semilunar folds and dark pigmentation of the caruncle; in addition to which, he has large patches of pigment on each ear —the lobe, the back and the outer portion. He is one of a family with this peculiarity through a number of generations. I have not seen the other members of the family. The man himself is a subject of chronic polyarthritis, and is very lame. He came to me for the extraction of cataracts. They had nothing to do with this congenital condition.

Dr. Quackenboss: I saw a well-marked case of this condition in 1908, in a woman sixty-eight years of age. The condition was congenital. The woman had been born at sea on a sailing vessel, and the sailors said that the condition was due to the fact "that she was born under the equator".

Acquired Symmetrical Opacities of the Cornea of Unusual Type. —Dr. George F. Libby, Denver, Col.

The patient was a woman, aged thirty-seven, when seen first. There was a symmetrical, yellowish-white, slightly vascular opacity about 5 mm. in diameter, in the nasal half of each cornea. No previous ocular disturbance had been noticed. The epithelium was smooth, clear and not elevated; and the substantia propria was deeply invaded. The duration was about four years. The health was good and the family history negative. Tuberculosis, syphilis and acne rosacea were excluded. Slight increase in size of each opaque area occurred in the three

years that she was under observation. No treatment was of avail. This condition has not been described, as far as the writer can ascertain, nor observed by any of his associates.

DISCUSSION.

DR. DE SCHWEINITZ: I have a patient whose business at one time required him to expose himself to the heat of furnaces. He developed a symmetrical, crescentic patch on each cornea, in the upper part. They gave absolutely no inconvenience to the patient, and were hidden, for the most part, by the ordinary position of the lids. He has normal vision, and is a normal man in every other way. The only other case that I have seen, which is not symmetrical, is in a Hebrew woman, who has the condition on the outer side of one cornea. This particular eye is not always free from irritation, but she has no actual iritis. I have known the family of the man patient for a number of years, and none of them has this peculiarity; so I hardly think that it can be classed among the familial degenerations of the cornea. I should think that the explanation must be some peculiar change in the corneal tissue, dependent on a so-called dystrophy. It does not appear to be inflammatory or a familial lesion, or due to an infection.

DR. CLARK: A case of mine would not come in the same class. It was a case of dystrophy of the cornea that I reported a number of years ago, which produced thirty diopters of astigmatism. There was a groove-like break in the eye. The man was a locomotive engineer, and this condition reduced his vision and produced this great amount of astigmatism, which was reduced to five diopters by the use of the galvanic battery on the whole of the groove. He had the same condition in the other eye. It came on without any cause that he could discover. The second eye, however, showed a much smaller area of the cornea covered.

DR. LIBBY (closing): I have debated in my own mind between some hereditary type of degeneration (which, of course, cannot be proved), and possibly a specific condition.

Blepharochalasis.—Report of Two Cases.—DR. EDW. STIEREN, Pittsburg, Pa.

This condition, though rare, will doubtless be reported more frequently since Weiller has called attention to it. The dis-

ease is essentially a thinning of the skin of the upper lid allowing great stretching, plus the presence of fat subcutaneously.

DISCUSSION.

DR. ZIEGLER: I believe that this condition is a reflex neurosis from a lesion of the sympathetic; and I base this conclusion on certain disturbances that followed an intra-nasal operation in the hands of a colleague. These saponaceous deposits seem to be an hyperplastic change due to some disturbance in the lymphatics. Otherwise, I do not see how the condition could change and clear up as it does.

DR. STIEREN (closing): I agree with Dr. Ziegler that the origin of these cases is a sympathetic neurosis. All the cases reported came on apparently just about the first menstrual period; and in this case of mine, there was undoubtedly a change in all the superficial vessels, suggesting the sympathetic involvement of the caliber of the vessels.

Contraction of the Frontalis in Abduction of the Eyeball.—DR. WILLIAM ZENTMAYER, Philadelphia, Pa.

This is a rare associated action in a man twenty years of age, in good health. He has had a squint in his left eye since childhood. There is concomitant convergent strabismus, the right eye fixing. Lateral movements on both sides are limited, more so to the left. After the left eye passes the middle line a marked contraction of the frontalis on the same side occurs. During convergence the lower fibers of the frontalis show a slight tremor on both sides. Neurological examination shows fundus and fields normal.

DISCUSSION.

DR. LANCASTER: Was there any evidence that it required an unusual effort to make that motion when it overflowed on the frontalis?

DR. RAY: I should like to ask whether there were any other cases in the family. I have two similar cases in one family.

DR. WEEKS: In the marked cases, the difficulty seems to be principally with the externus of the eye in the limited movement outward, which is ordinarily limited to the median line. On forcible abduction, there is retraction of the globe, which accounts for the narrowing of the palpebral fissure.

DR. ZENTMAYER (closing): The limitation of abduction is only that which results from secondary contractures and poor fixation in that eye. You can get him to rotate it fully as far on that side as on the other. Where there is simply an esotropia, due to hyperphoria, I think the trouble is probably a nuclear one.

A Case of Symmetrical Occlusion of the Pupils by the Development of Cysts and Small Solid Masses from the Uveal Layer of the Iris.—DR. JOHN E. WEEKS, New York City.

The patient gave a history of development extending over many years, and the question of a congenital origin occurred to me. Sometimes cysts develop from the uveal layer, and become detached with free movement in the aqueous and vitreous chambers.

DISCUSSION.

DR. GREENWOOD: About eight years ago I presented a patient whose case was very similar to the ones reported here to-day. The case was one of bilateral cyst on the pigment layer of the iris. The patient came to me for chronic glaucoma in both eyes. These cysts had been noted since childhood. Both eyes were operated on for glaucoma by double iridectomies; and, at the same time, some of the cysts were removed. Dr. Verhoeff made an examination and found that they were true cysts of the pigment layer of the iris.

DR. CLARK: I wonder whether Dr. Weeks has made any investigation of the appearance of free pigment masses behind the iris in the horse. It is quite a well known fact that there are large numbers of these.

DR. WEEKS (closing): I am very glad to have Dr. Greenwood speak of his case. With regard to the masses in the eye of the horse, these masses, of course, are very well known, and are spoken of as grape-like bodies. They are not cysts. They are apparently prolongations of the ciliary process.

The Pathology of the Corneal Section in Cataract Extraction.—DR. FREDERICK TOOKE, Montreal, Canada.

The healing of a cataract incision is comparable to that of a simple penetrating wound occurring at the corneo-scleral margin. Primary union first occurs about the middle of the sub-

stantia propria by fibrous cells, the superficial and deeper portions of the wound assuming a triangular form. The outer wedge is occupied by granulation tissue, the result of an ingrowth of superficial corneal epithelium and of bloodvessels which are gradually pushed forward as scar tissue is established. This produces a temporary puckering which later flattens down.

DISCUSSION.

DR. WEEKS: It has been my experience to find the wound perfectly closed up at the end of twenty-four hours in cases in which I have made a conjunctival flap, and then, on dressing the eye at the end of forty-eight to seventy-two hours, to find a filtration taking place, the anterior chamber having been restored some time before the filtration takes place. I should like to ask Dr. Tooke whether he has any explanation for this. I have one myself: That the plastic material thrown out a few minutes after the operation becomes dissolved, more or less, within twenty-four to thirty-two hours; and the aqueous is permitted to escape because of this solution of the fibrillæ of the fibrin.

DR. TOOKE (closing): In regard to what Dr. Weeks has said I have rceeived a little information relating to my own paper which I am glad to acknowledge, and with which I am quite in accord.

Psammo-Sarcoma of the Orbit in a Girl of Thirteen: Removal with Preservation of the Eyeball and its Functions.—DR. G. E. DE SCHWEINITZ, Philadelphia, Pa.

The tumor, which had grown slowly for two and one-half years, was removed from its site, at the upper and inner side of the orbit, through an incision which passed beneath the orbital arch and along the inner side of the orbit. It was completely encased within a thin shell of bone, was soft in consistency, and somewhat resembled brain tissue. It did not involve the ethmoid or frontal sinus, and there was no connection between it and the brain cavity. The growth on microscopic examination was seen to be composed of spindle cells, thin-walled vessels, and many round refractile homogeneous bodies which present the appearance of psammoma-bodies.

DISCUSSION.

DR. GREENWOOD: Ten years ago, there appeared at the Boston Hospital a young woman of twenty-eight, with a marked proptosis of the left eye, which was produced by a tumor. An exploratory operation was done, and on opening the orbital cavity, a thin plate of bone was found, which proved to be the lower plate of the orbit. From that could be extracted sand-like bodies. As soon as the patient was in a better condition, I removed the entire upper jaw, including all the sarcoma material and the sand-like bodies. The last time I heard from her, the patient was still alive. So far as I could find, that was the first case of sarcoma of the antrum, and was diagnosed first as a tumor of the orbit.

A Case of Intraocular Melanosarcoma.—DR. ROBERT SATTLER, Cincinnati, Ohio.

Enucleation was followed two years afterwards by a similar tumor mass in the orbit, for which two applications of radium were resorted to, each lasting twenty-four hours. The first consisted of 80 mgs., and the second, six days later, of 100 mgs. Though of unquestionable superior therapeutic value in inoperable lymphosarcoma and carcinoma, radium has yet to show a similar one for melanotic sarcoma of the eye and orbit.

DISCUSSION.

DR. THEOBALD: I might mention a case that has recently been under my observation: One eye had been enucleated for glioma of the retina; some weeks later, a hard mass began to manifest itself in the orbit. I suggested that possibly the application of radium might accomplish something. Two applications have been made, and a month or more has elapsed since the first one. It is too soon to feel sanguine, but the mass in the orbit has been diminished by these two or three applications. It is doubtful whether this was a gliomatous mass starting in the orbit. That is very unusual. We seldom have glioma returning in the orbit.

DR. CLARK: It strikes me that it might be worth while to have some experiments conducted as to the effect of radium on the normal eye, and incidentally, on the pathological tissues. Two years ago a little girl was brought to me with one eye very much protruded; and, after careful study of the case, I

rather concluded that it was sarcoma of the orbit. I tried a variety of methods, without effect. Later, I, with the consent of the child's mother that the eye should be removed if we found the mass, and the orbit eviscerated, obtained from Dr. Baldwin, of Baltimore, a radium tube, to use with the supposed sarcoma. I made a free canthotomy, turned the eye inward toward the nose; and, by means of a speculum arrangement, exposed to a certain extent the field; and I could see a mass that resembled an angioma. I inserted the radium tube down into the mass, without cutting it. I left the tube in for four hours, and then removed it; and within two or three weeks afterwards, there was marked recession of the growth. At the end of two weeks, I reinserted the radium tube, and left it in for the same length of time as before. In the course of a few months, the eye had receded almost to the normal condition, having been level with the ridge of the nose, or beyond. The amount of traumatism produced by the proceeding might have caused some recession; but from all appearances, the recession was due to the use of the radium. About six months afterwards, on the return of the child, I found that the eye which had been free and clear before had developed a nuclear cataract. This was of no consequence in this case, because the eye was practically blind before, but I thought it would be well for us to learn something by experimentation as to what applications of radium will do with the eye—especially in the situation where I used it, back near the ciliary ganglion.

Dr. Friedenwald: I only want to point out a possible bad effect of radium. A woman of seventy, came to me last summer for a very large epithelioma of the upper lid, involving the entire lid and extending back into the orbit. The case was submitted to Dr. Kelly, of Baltimore, for his opinion regarding the use of radium treatment. He approved of it, and ordered several massive applications. As the result, the growth disappeared within a few weeks; there apparently was perfect recovery. A few weeks ago, I received a letter telling me that the eye became much inflamed and had to be enucleated, on account of glaucoma. Whether the use of the radium had anything to do with the development of this glaucomatous condition, I do not know. There has been no recurrence of the growth.

Dr. Ellett: I have seen a patient with an epithelioma over

the region of the lacrimal sac, who was treated with radium, and a very excellent result was obtained. He had previously been treated with the X-ray, without effect.

DR. ZENTMAYER: I should like to speak, also, of the possibility of aggravating cases by the use of radium. The case I have in mind was an epithelioma of the lower lid, which had formerly been treated by means of X-ray, with no decided benefit. Later the case was treated with radium, and the growth made very rapid progress thereafter. There is no question that the growth was stimulated by the application of radium.

DR. DE SCHWEINITZ: There is a young woman in Philadelphia who at present is blind in one eye, and in the other eye has all appearances of sarcoma of the choroid. She was finally treated with radium externally over the globe of the eye. There has been no subsidence and no increase in the growth, so far as can be told, and the attending physician believed the growth to be smaller; but in any case the radium has done no harm.

DR. SATTLER (closing): I confess that it was with not a little trepidation that these tubes were plunged into the very apex of the orbit. The close proximity of the optic chiasm and the penetrating power of the rays, which are of different length, make this a dangerous procedure. In Dr. Clark's case, the rays, with their affinity for the tissues, may have penetrated further. So far as the application of radium to epithelial growths of the lid is concerned, cancer yields quickly and promptly to radium, but squamous epithelium does not yield. That is a variety that resists radium.

Tuberculosis of the Bulbar Conjunctiva.—DR. GEORGE F. LIBBY, Denver, Col.

The patient was a woman, aged forty. She had firm, whitish-red nodules over the attachment of the right internal rectus, extending to the cornea, and a deep red, firm nodule pushing the plica semilunaris forward. There was tubercular cervical adenitis of a few months' duration, with pulmonary involvement, and elevated temperature. Cure of the ocular condition took about a year, under tuberculin injections and rays of direct sunlight on the affected tissues. The glands in the neck diminished in size, and the general health improved so as to permit of return to work.

DISCUSSION.

DR. WEEKS: I should like to ask whether Dr. Libby thinks that the exposure to sunlight had anything to do with the recovery of the patient. Those who treat numbers of cases with tuberculin find that recovery takes place without the use of anything else, keeping the general system in good condition.

DR. LIBBY: If I may answer Dr. Weeks at once, I would say that the inspiration for the use of direct sunlight in this case was a well-marked case of a medical student in Switzerland, whose eye was infected with tubercle bacilli in opening an abscess, which spurted into his eye. Direct sunlight, without the use of tuberculin, brought about a cure.

Report of a Case of Tuberculosis of the Sclera of Probable Primary Origin.—DR. GEORGE H. BELL, New York City.

The patient, a woman aged twenty, gave an indefinite history of injury of the eye while dressing the hair. At the end of a month, hard, reddish nodules developed in the sclera, 3 mm. from the limbus. Following .00004 gm. of tuberculin, bacillen emulsion (B.E.), there were marked constitutional symptoms, increased chemosis and congestion of the conjunctiva and sclera, and severe pain in the eye, but no iritis, cyclitis, or keratitis. Ten days later, the mass had extended to the cornea. At the end of six months, 50 injections of tuberculin had been given; and the eye was normal, except for the scars on the cornea and pigmentation of the sclera.

DISCUSSION ON PAPERS OF DR. LIBBY AND DR. BELL.

DR. PYLE: I want to call attention to the case of a woman of forty years, who came under my care with inflammation of the anterior segments, believed to be tuberculosis. She had repeated injections of tuberculin, with apparent cure, followed by recurrence. It seemed to me that the case was hopeless; and in desperation I made an injection of diphtheria antitoxin. Immediately afterwards she began to get well.

DR. THEOBALD: May I ask Dr. Libby and Dr. Bell whether the tubercle bacillus was found in their cases, or whether an effort was made to recover it from these ocular areas of infection?

DR. LIBBY (closing): We did not get the bacilli from the

scrapings. You have all noticed that in Switzerland of late, they have had good results in the treatment of bone tuberculosis and tuberculosis of the viscera, by direct rays of the sun; and the inspiration for their use in this case was the success met with in Switzerland.

DR. BELL (closing): My case was in a private patient; and when they got the local reaction, and also the constitutional, I do not think it well to subject her to the microscopic tests.

A Case of Alternating Transient Monocular Blindness Ending in Complete Loss of Vision in the Left Eye.—DR. H. MAXWELL LANGDON, Philadelphia, Pa.

This patient had transient attacks lasting over a period of twelve years, seldom binocular. The left eye was more frequently affected, and duration of the blindness was from thirty seconds to five minutes. The patient had frequent attacks of diplopia, lasting from thirty seconds to one minute. One image was higher than the other and to the right. The patient was subject to headaches, not connected with attacks of blindness or diplopia. In January, 1914, an attack of blindness came on in the left eye, which did not clear up. The fundus shows complete collapse of the retinal circulation. The right eye shows marked sclerosis of retinal arteries. The bloodpressure is high, a slight trace of albumin is present, and we also found a few casts in the urine. There is also a valvular heart lesion. Is this blindness the result of embolus or of collapse of the retinal arteries? Other cases of transient blindness have been reported; usually accompanied by signs of cardio-vascular disease. Similar conditions are found in migraine, intermittent claudication and some unexplained hemiplegias.

DISCUSSION.

DR. DUANE: I had the opportunity of seeing a case of recurrent blindness of this sort, which affected the two eyes at intervals of a couple of years; and the second time I saw the patient during an attack. When she first came to me, I assured myself that she had no central or paracentral scotoma. Three years ago, she came in saying that the day before, and the day before that, she had had transitory obscurations of sight in the right eye. I found her vision in that eye minus, and discovered an absolute paracentral scotoma, bordering the point of fixation

and connected with the blind spot. I found the interior, to all appearances, absolutely normal. I used inhalations of nitrite of amyl and deep massage of the eyeball, and the vision progressively came up. Within the following day or two, it was normal; although the scotoma remained, and remains to this day. Two years later, she came in again, and said she had just had an attack in the other eye. The vision in that eye was less than 18/200, and there was a general haze over the temporal region. I tried massage and nitrite of amyl again, examining the patient while she was using it; and I actually saw the vessel dilate under my eyes until it filled to a normal size. The vision returned to practically normal, from less than 18/200.

Dr. Peter A. Callan, New York City: It has been my privilege, through good fortune and the courtesy of my colleagues, to see several of these very interesting cases. I can heartily endorse what Dr. Langdon says, that you cannot appreciate how reduction in the arterial pressure could be responsible in such cases. I want to show a diagram of obliteration of one of the vessels, due to endarteritis. When the case came under observation, the patient had a large fog bank, due to the necrosis or œdema of the retina. The patient was kept under observation in the dispensary for two or three hours at a time, on repeated days. On the second or third day, there was a complete reversal of the current in a branch of the central retinal artery, and we have found elements flowing in the same vessel in two different directions at the same time.

Dr. Weeks: I should like to call attention to one or two points. One is the possible differentiation between the phænomena accompanying the spasm of the bloodvessels which has been referred to. In these cases of spasm, the transient loss of vision is not followed by cephalgia. In most of these cases, close examination of the arterial walls shows arteriosclerosis, more or less advanced; and on the supposition of their being cases of spasm or of partial obstruction by means of an embolus or thrombus, the differential diagnosis can be made.

Dr. Clark: These cases of transient blindness are interesting and very puzzling. I have been subject, from time to time, to little attacks that were quite a study to me. On one occasion, Dr. Hansell was visiting me, and we had the ophthalmoscope near at hand when I had an attack and he made a most careful examination, and found no departure from normal in my case. What these attacks are due to, I have never been able to decide.

DR. ZENTMAYER: It is well known that spasm is apt to occur in the early stages of arteriosclerosis, and I believe that some neurologists have explained the hemiplegia of uræmia by supposing that it is a spasm of the cerebral vessels.

DR. STANDISH: On several occasions, I have had the opportunity of looking into eyes, very soon after there had occurred a block in the central circulation. With regard to spasm, I would say that while there may be no evidence that spasm of the retinal circulation occurs, clinically it does occur. I have experimented on guinea-pigs, and watched the alternation of the circulation. It is too early for a change in the ganglion cells. There must be some selective action that produces distinct contraction. There is every evidence to show that spasm of the arteries does take place; and if it does, why not in the retinal circulation? It seems to me that there can be no other explanation. It seems possible that some of these very curious blindnesses, temporary in character, occurring at frequent intervals, and over long periods of time, may be dependent on some alteration in the quality of the blood. Sometimes the change in the quality of the blood may be of such a character that there is complete restoration of the vision; and sometimes the fine changes in the intima that already exist are sufficient to constitute a permanent change.

DR. WILDER: This very interesting paper suggests another thought; and that is the importance of differentiating these cases of transient blindness. It is extremely necessary to determine whether there is any hysterical element in the case; nor must we exclude the idea that there may be such an element present, merely because the individual is a male and has reached the age of forty years.

DR. FRIEDENWALD: I cannot agree with Dr. Weeks in his assumption that the presence of headaches, following such an attack, is required to prove that it was of the scotoma simplex variety. I have seen a number of cases in which the symptoms of scotoma simplex in all their variety appeared without any headache following.

DR. CLARK: I wish to confirm the statement of Dr. Friedenwald. I had a case of scotoma of this kind for a series of years, and no headache with it.

DR. PARKER: I was called in recently to see a patient who had been operated on, the turbinate body on the right side having been amputated under gas anæsthesia. She complained of par-

tial loss of vision of the right eye. I found the upper half of the fundus had lost its color. The arteries were almost absent from view. Taking the field of vision, I found that the lower part was entirely gone. At the end of fifteen minutes, the arteries had refilled, and she no longer complained of this loss of the lower vision. Two hours later, I found her vision normal. I examined her at intervals for two weeks, and there was no recurrence. It was a case of spasm, incident, probably, to the operation.

DR. LANGDON (closing): There is no question but that the majority of these cases have arteriosclerosis, but there are these four or five cases that were not due to that cause. The observation of Dr. Parker that the pupil remained dilated, is unusual.

Retinitis with Massive Exudation.—DR. HARRY FRIEDENWALD, Baltimore, Md.

There are three groups of retinitis: First, cases with gross vascular disease; second, those without vascular disease; third, those with the formation of large arterio-venous communications. Since the publication of the paper of Coates, a number of additional cases have been reported. In all these cases but one, the changes in the bloodvessels were very marked. In several of them, there were peculiar aneurysmal formations. I cannot explain these conditions. Two showed definite nephritic lesions. One had syphilis, and one had a marked attack of typhoid. Only one had nothing bearing on the disease.

DISCUSSION.

DR. WEEKS: I should like to ask whether therapeusis had any influence on the cases?

DR. WILDER: It seems to me that when we encounter these cases, we should be able to recognize them as belonging to this variety. At least, I do not see how we should ordinarily confuse them with glioma. Whether we should be able to differentiate them ophthalmoscopically from cases that subsequently develop into retinitis proliferans, is questionable. I should like to ask whether Dr. Friedenwald saw any of these cases at any time before the exudation developed; and if so, whether there was any hæmorrhage into the retina that might subsequently have become organized, and whether he thought that this would have any bearing on the ætiology of the process?

DR. HERBERT HARLAN, Baltimore, Md.: I recall seeing the elder Dr. Knapp work over a man in whose eye he found a condition similar to this. That was twenty years ago. Dr. Knapp was inclined to think the case malignant.

DR. FRIEDENWALD (closing): To answer Dr. Weeks: No effect was seen with any form of treatment that was given.

Answering Dr. Wilder, I would say that although small hæmorrhages were visible in these cases, there was never, in any of them, a very large hæmorrhage. It was curious how the disease would progress. It would remain stationary for days, weeks, or months; and then, with a sudden diminution, there would be an extension. Either an additional sector was taken up, or a broad band was added; and you could not see any line of demarcation between the new and the old.

The Convergence Index as a Measure of Convergence.—DR. ALEXANDER DUANE, New York City.

Fallacies are produced by failure to differentiate between convergence adduction and lateral adduction. The differentiation is important from a pathological standpoint. The measurement of convergence is effected either by prisms or by determining the convergence near point. Fallacies attach to the former method, owing to the wide variability of the results in normal cases. Even when the difficulty is overcome, measurement is inexact when prisms of high degrees are used. What really is to be determined is not the actual distance of the convergence near point from the point of measurement, nor even this distance reduced to metre angles; but the ratio between this and the semi-interpupillary distance (equalling the tangent of half the angle of convergence). This ratio is called the convergence index. There is a simple relation between this and the convergence in degrees.

DISCUSSION.

DR. LAMB: With regard to getting the pupillary distance, I would say that I have used a two millimeter pin-hole disc for years, covering each eye, and using the disc separately with the others until the patient can see the object for distance and near. I find that the difference between distance and near is sometimes five millimeters.

Curvature and Index Myopia, with Report of Cases.—Dr. A. Edward Davis, New York City.

Because of the relative infrequency of such cases, it is desirable that well-marked instances of such anomalies should be reported. High degrees of index myopia have been attributed to increase of the refractive index of the aqueous humor, but it has been shown that only a moderate degree of myopia can be produced in this way. The role that diabetes, iritis, irido-cyclitis and also age play in such cases must be considered.

DISCUSSION.

Dr. Ellett: I wish to report an interesting case of index myopia in a child about a year old, suffering from quinine amblyopia. The refraction in this case equaled, at one time, eight diopters of myopia, as measured with the ophthalmoscope. With the clearing up of the condition and the restoration of vision, which occurred in six or eight weeks, refraction returned to about emmetropia.

Dr. Theobald: In Dr. Duan's cases, where he spoke of a marked increase in myopia, it occurs to me to ask whether the anterior chamber was shallow? If the crystalline lens had come forward, the posterior and anterior myopia might be explained. It seems to me quite as plausible to suppose that the whole lens has changed its curvature and become more convex, owing to degeneration, as to suppose what Dr. Davis did. I have been thinking of cases of so-called "second-sight", as being produced by a sudden swelling of the lens, which renders it more convex.

Dr. Davis (closing): I believe, myself, that many of these cases are due to swelling of the lens; but I consider this to be due more to the increase of the index of the nucleus, especially after some decrease in the cortex.

The following officers were elected: President, Dr. M. H. Post, of St. Louis, Mo.; Vice-President, Dr. G. E. de Schweinitz, Philadelphia, Pa.; Secretary-Treasurer, Dr. William M. Sweet, Philadelphia, Pa.; Corresponding Secretary, Dr. Arnold Knapp, New York City.

The next annual meeting will be held in New London, Conn., on July 6 and 7, 1915.

ROYAL SOCIETY OF MEDICINE.

Sections of Neurology, Ophthalmology and Otology.

At a conjoint meeting on February 26th, Mr. William Thorburn in the chair, a discussion on Nystagmus was opened by Mr. W. T. Holmes Spicer, who traced the history of our knowledge of the condition, and showed that the movements of the eyeballs varied from large and obvious excursions down to movements only perceptible by the ophthalmoscope. In nearly 50 per cent. of 200 cases he found that the movements were in a horizontal direction; in about 15 per cent. rotary, in about 12 per cent. vertical, in 4 per cent. mixed, in 2 per cent. irregular, in 2 per cent. circumductory, and in 1 per cent. were condivergent or disjunctive. The horizontal and vertical forms varied greatly in rapidity of movement and in range, and were nearly always conjugate, but in a few cases they were condivergent. The rotary cases were nearly always conjugate, but condivergent ones had been seen. Circumductory movements were usually conjugate; he had never seen one which was not. They were often rhythmical. Use of the eyes was essential to the existence of nystagmus. The eyes were quiet during sleep, and sometimes so in the dark. It sometimes happened that on covering one eye, oscillations commenced in both. Unilateral nystagmus was not uncommon, and the movements were usually vertical, but not always. If the nystagmus had been recently acquired, a sensation of movement of objects was produced, but this was never noticed in the congenital cases. Nystagmus did not occur in those born blind or who became so very soon after birth. It often became more marked with fatigue; in some cases light produced it, and in some it became more apparent in the dark. Some persons were able to produce nystagmus at will. The most important causative factor was a defective retinal image, due either to corneal or a lenticular lesion or to some abnormal nerve or retinal condition. Errors of refraction had not been proved to cause this, but corrections of high degrees of astigmatism had often led to great improvement, or even to cessation of the nystagmus. Many of these patients had large refractive errors. Albinos and those with excessive pigmentation often had nystagmus. The pigment which affected eyes in this manner was usually supposed to be that of the retinal epithelium, but this could not be recognized by the ophthalmoscope, as the

choroidal pigment masked it, and this might really be the case in those which were not obviously albinotic. In some cases the nystagmus was hereditary, but its cause not definitely ascertained. As regards occupation nystagmus, the weight of evidence was on the side of bad fixation being the primary cause, and, besides miners, compositors were often affected. In spasmus nutans the head movements preceded the nystagmus by a few weeks, and they bore no relation to each other. The condition was supposed to be due to an instability of the motor centres.

Dr. James Taylor said that nystagmus, though usually associated with visual defects was sometimes due to labyrinthine and nerve diseases. With regard to the brain, nystagmus was most likely to follow disturbance of some co-ordinating mechanism in near relationship to the mid-brain, pons, and cerebellum. It was seen in disseminated sclerosis, Friedreich's ataxy, and syringomyelia. It was common in cerebellar disease, and in unilateral lesions. In most cases of cerebellar disease nystagmus was found, as also it was in local lesions in the vicinity of Deiter's nucleus. Besides the central motor mechanism, the peripheral nervous mechanism might produce it. The muscles themselves might cause it, as in myasthenia gravis.

Mr. Sydney Scott thought labyrinthine conditions undoubtedly produced nystagmus. Rhythmic nystagmus might be produced in normal people by applying excessive stimuli to the semi-circular canals, such as by rapid rotation, irrigating the ear with hot or cold water, or the galvanic current. He described the anatomy and physiology of these canals, and expressed the view that "the deviation of the head and eyes is in the same direction as the current in the endolymph, and the nystagmus is in the opposite direction." He had met with twenty-three examples of the "fistel symptom," and in nearly every case he had been able to verify the existence of a labyrinthine fistula, though many cases of fistula occurred without the "fistel symptom" being produced. As regards spontaneous labyrinthine nystagmus, it resembled induced nystagmus in kind and degree, being always symmetrical and generally unilateral. The less acute forms were sometimes seen in cases of acute or chronic otitis media. Spontaneous rhythmic rotary nystagmus to one side was also met with when the opposite labyrinth had become functionless, and disappeared again when both became destroyed. If the labyrinth were stimulated in cases of total blindness, such as resulted from primary

optic atrophy unaccompanied by intracranial disease, rhythmic nystagmus could be provoked by rotation or irrigation. When one labyrinth was defunct spontaneous nystagmus could be arrested by pressure on the carotid sheath of the normal side. It was possible to measure the strength of the stimulus required to produce nystagmus, for sometimes it was easier to be obtained on one side than the other

Sir Anderson Critchett, C.V.O., Bart., President of the Section of Ophthalmology, occupied the chair at the resumed discussion of Nystagmus on March 4th.

The otological aspect of the case was presented by Mr. Sydney Scott, M.S. He said that the association of certain forms of nystagmus with labyrinthine stimuli justified the use of the term "labyrinthine nystagmus." This was nearly always rhythmic, having alternate slow and fast components, and it was the secondary or rapid component which served to designate the type. Rhythmic nystagmus could be produced in the healthy person by applying certain excessive stimuli to the semi-circular canals: (1) by rapid rotation of the person, (2) by irrigation of the ear for a few minutes with hot or cold water, (3) passing a galvanic current through the head, usually 5 to 10 m.a. The nystagmus was then a normal expression of an excessive stimulation of the vestibular nerve. The same could be set up in patients the subject, or who had been the subject, of middle ear disease. In 1910 he formulated the law "the deviation of the head and eyes is in the same direction as the current in the endolymph, and the nystagmus is in the opposite direction." In some cases in which one labyrinth was defunct, spontaneous nystagmus could be arrested by digital compression on the carotid sheath of the normal side.

[*Continued in August issue.*]

ABSTRACTS FROM MEDICAL LITERATURE.

By W. F. Hardy, M.D.,
ST. LOUIS, MO.

TOBACCO AMBLYOPIA.

Vandegrift (*Medical Record,* May 30, 1914) discusses tobacco amblyopia and suggests that it is more prevalent than ophthalmologists suspect, for in its slight manifestations it is present in many men whose occupations do not necessitate its discovery. It is apt to be overlooked when the only symptom is a small red-green blind area over the fixation points. The early stage of macular red-green blindness may persist for several months before diminution of vision begins. The amount of tobacco necessary to cause the disease varies greatly. Tobacco amblyopia is more prevalent among laborers and artisans, so that it may be that cheaper varieties of tobacco are more prone to cause the disease. Smokers of pipe and cigars, and chewers of tobacco are more frequently affected than cigarette users.

Tobacco smoke is found to contain many toxic substances, such as carbon monoxide and dioxide, marsh gas, hydrogen sulphide, hydrogen cyanide, furfurol, phenols, pyridine, empyreumatic oils and a trace of nicotine. The most toxic substance in smoke is pyridine. It appears likely that nicotine and its decomposition products, particularly pyridine, cause the systemic symptoms of tobacco poisoning and the retro-bulbar neuritis of tobacco amblyopia. The length of time required for the production of tobacco amblyopia is uncertain. The author reports a case which developed in less than two years, in a patient who acquired the smoking habit more than 25 years before. The lesion of tobacco amblyopia is a chronic retro-bulbar neuritis, affecting particularly the macular bundle of nerve fibres. Peripheral vision is usually normal. The pathognomonic symptom is a distinctive defect or a scotoma in the center of the visual fields. The scotoma is for red and green, beginning over the fixation point and spreading towards the blind spot in an oval manner. Usually there is a scotoma in each eye of similar aspect, but at times it is found more advanced in one eye than in the other.

SOME OCULAR DISTURBANCES OF NASAL AND ACCESSORY SINUS ORIGIN.

The subject of ocular disturbance of nasal and accessory sinus origin, about which much is now being written and which lately has held the centre of the stage in ophthalmological discussions, is the basis of a paper by Weinberger (*Pa. Med. Jour.*, May, 1914), read before the Medical Society of the State of Pennsylvania. The author lays claim to no originality, but desires to make a strong plea for a part of the anatomy which he feels has been neglected as far as its relations with surrounding structures is concerned. Particular attention is called to the reflex symtoms, asthenopia, headaches, etc., unrelieved by proper refraction, but rapidly and permanently cured by attention to large hypertrophied or polypoid turbinates. He states that it is not uncommon to find a patient with some or all of the symptoms of asthenopia of all degrees who upon examination of the fundi show the hyperæmia of eyestrain and who is emmetropic or properly fitted with glasses, yet is relieved of the asthenopia and symptoms of eyestrain only after treatment of or operation upon an existing nasal trouble. Children with adenoids and the concomitant nasal congestion are stated to show chronic retinal hyperæmia chiefly of the macular region and that often there are permanent macular changes with subnormal vision. Where an unstable and changeable degree of phoria exists demonstrated by repeated examinations, a suspicion of sinus involvement should arise. Temporary vertical phoria following unilateral frontal sinusitis has been observed. The ethmoid sinuses are a prolific cause of chronic forms of retino-choroiditis. A visible demonstration of abnormal secretions is not necessary; the sinus involvement is often obscure, insidious and progressive. It is significantly remarked that these veiled chronic sinus conditions really do more ultimate and permanent harm to the eye and to vision than an acute sinusitis which clears up after a time. Posey is quoted as saying that, "Absence of intranasal symptoms, either subjective or objective, does not necessarily preclude absence of sinusitis." This latter statement was emphasized in the discussion by Dr. Mary Buchanan, who drew attention to the important fact that the easy cases to diagnose, the ones in which the pus is pouring over the pharyngeal wall, are not the ones which are damaging the eyes. On the contrary, it is generally the case in which there is no pus visible that is caus-

ing the paralysis or the retinitis. It is the pus that cannot get out that does the harm. Reference was made to the remarkable way in which these cases clear up after treatment even though no pus is demonstrated. Weinberger describes a number of illustrative cases in which remedial measures applied to the existing nasal conditions resulted in relief of persistent asthenopia, the cessation of intra-ocular trouble or the restitution of normal vision.

THE INTRACAPSULAR CATARACT OPERATION IN IMMATURE CATARACT.

In a somewhat lengthy article dealing with the intracapsular cataract operation in immature cataract, Fisher (*Ophthalmology*, April, 1914, Vol. X., No. 3) relates his experience with the procedure made easier as he thinks by the use of certain instruments. The proper use of his instruments necessitates less dependence on a skilled assistant, who heretofore has been nearly as important in the proper performance of the operation as the trained operator himself. This is accomplished by the correct use of a double lid hook, the technique of which is quickly mastered. He deprecates the use of a lid speculum at any stage of the operation. The loss of vitreous which has so often accompanied attempts at the intracapsular operation does not seem to intimidate Fisher or to lessen his enthusiasm for the procedure. Such loss in his hands in a large number of operations done in India was very infrequent. A description of the complete operative technique is given, the use of the instruments, the incision, iridectomy, control of the lids, delivery of the lens, the toilet and after treatment. The question, "Should an immature cataract be operated upon?" is answered by Fisher in the affirmative, provided the operator uses the Indian method. Argument is made and statistics given substantiating this opinion. In closing he urges that all ophthalmic surgeons contemplating the removal of the lens in its capsule, master the Smith technique and use it in their old operation and not to attempt to use it in the Indian operation until they have perfected it in many capsulotomy operations. The prediction is made that Smith technique when used in the capsulotomy operations will do more for the cataract operation than all that has been done for it in the past hundred years. A full appreciation of the numerous points made can only be gained by a perusal of the original article.

SOME FURTHER EXPERIENCES WITH THE HOMER SMITH METHOD IN THE EXTRACTION OF IMMATURE CATARACT.

Hansell (*Medical Record,* January 17, 1914, Vol. 85, No. 3) records some further experiences with the Homer Smith method of the extraction of immature cataract. Two case reports are given. He has operated upon ten cases in all. Hansell does not emphatically advocate this method, but thinks it to be a solution of the vexed question of operative treatment of immature cataract. The Indian method of extraction in the capsule does not find favor with Hansell, and while the method of Stanculeanu is believed to have more to commend it, doubt is expressed if the procedure will become popular with American ophthalmologists. The artificial ripening operations are not generally practiced because of their danger. The disadvantages, annoyances, deprivations and depressions of slowly advancing blindness are dwelt upon and the need of some safe procedure to succor these unfortunate patients is patent. The lens in an individual over 60 years of age is not sufficiently sclerosed to assume that its extraction will be unattended with the retention in the anterior chamber of the soft cortex. It has been the practice of Hansell in late years to irrigate the anterior chamber in all cases of extraction of immature cataract and in practically all those believed to be mature. A clear pupil following expulsion of the lens is stated to be no criterion. The remaining cortex may be perfectly clear and escape detection. In following the Homer Smith operation Hansell does not deviate from this rule. The two case reports detail the technique and visual results which in one patient was 20/30 and in the other 20/20.

A Knapp or Ziegler knife needle is used, the incision is just deep enough to surely divide the capsule and lens cortex immediately beneath it and not to dislocate the lens. The form of the incision is unimportant though the V-shaped incision of Zeigler in after cataract is usually made. Smith advises the extraction within six hours of the capsulotomy, whereas Hansell allows an interval of 24 hours. A word of caution is sounded during the expulsion of the lens. After iridectomy one should remove all pressure by the speculum and wait a minute. If the lens shows no intention of expelling itself Hansell introduces capsule forceps, removes the central portion of the capsule and expresses the lens. Usually, however, the capsulotomy of the previous day obviates the necessity of introducing any instrument in the eye after the iridectomy.

BOOK REVIEWS.

THE AMERICAN ENCYCLOPEDIA AND DICTIONARY OF OPHTHALMOLOGY. Edited by C. A. Wood, M.D., C.W., D.C.L., assisted by a large staff of collaborators. Fully illustrated. Volume III. Cataract in Diabetes to Cocaine Carbolate. Chicago, Cleveland Press, 1914.

This volume of the Encyclopedia vies in excellence with its predecessors. Text and illustrations are excellent. About one-third of the volume is taken up by the article on cataract, which with the part published in the second volume forms really a large book on cataract in all its phases. Another large article deals with the neighboring cavities and their influence on the eye. We may, further on, draw attention to the articles on the choroid, its diseases and tumors, and to that on intraocular circulation, etc. Besides these larger articles we find the innumerable smaller items which render this work so eminently useful.

TASCHENBUCH DER AUGENHEILKUNDE FUER AERZTE UND STUDIERENDE. (Pocketbook of ophthalmology for physicians and students.) By Dr. Curt Adams. 3rd and enlarged edition. 71 text illustrations and 5 plates. Urban & Schwarzenberg. Berlin and Wien. 1914. Price $2.00.

A very useful manual. Its teaching is sound and thoroughly practical. For a pocketbook, however, its size and thickness are, it seems, too large.

SCLERO-CORNEAL TREPHINING IN THE OPERATIVE TREATMENT OF GLAUCOMA. By R. H. Elliot. 2nd edition, revised and enlarged. G. Pulman & Sons, London, W.

Mr. Elliot's glaucoma operation has aroused such a mass of literature and discussion that for about a year it has stood in the foreground of interest. In this year a great many of us have had occasion to get acquainted with the personality and the mode of operating of the genial, just and able author of this book. The second edition is enlarged chiefly by his experiences gained during this year and by a fuller detail regarding the technique of the operation. It will be read with the greatest interest by all ophthalmologists.

ATLAS ZUR ENTWICKELUNGSGESCHICHTE DES MENSCHLICHEN AUGES. von Ludwig Bach und R. Seefelder. (Atlas of the embryology of the human eye.) 3rd part. 28 text figures and 15 plates. Leipzig and Berlin. Wilhelm Engelmann. 1914. Price 22 marks.

Like the previous parts, this one arouses one's fullest admiration. The clear text and the truly magnificent illustrations are of equally high standing.

This part is chiefly devoted to the development of the sclera, vitreous body, choroid, retina and optic nerve.

Such a work as this should be on the shelves of every ophthalmologist and of every medical school where ophthalmology is being taught.

DIE ANAPHYLAXIE IN DER AUGENHEILKUNDE. von Aurel v. Szily, Dr. Vorwort von Th. Axenfeld. (Anaphylaxis in ophthalmology by Szily with a preface by Axenfeld.) Ferdinand Enke, Stuttgart. 1914. Price 24 marks.

Who would have thought a few years ago that it was possible to write such a volume on anaphylaxis in ophthalmology at this date? Yet this voluminous treatise is based on Szily's own work aided by U. Ausawa as experimental collaborator. After a long chapter on what is thus far known on anaphylaxis, the author describes the methods pursued in his experiments on the tissues of the eye. This general part is followed by the special one in which the results of the experiments made by others and of his own are detailed. The anaphylactic inflammations which he has been able experimentally to produce in the eye are illustrated by some beautiful plates.

The book is full of the most interesting reading and must give every student a great deal of material for new thoughts in this still so mysterious chapter of pathology on which Szily's book sheds some rays of light of decided value. ALT.

EDITORIAL NOTICE.

Dr. J. F. Shoemaker, the Assistant Editor of this Journal, is going abroad for a prolonged stay. He, therefore, has for the time, to our regret, severed his connection with the Journal. Our best wishes accompany him on his way.

Dr. W. F. Hardy has been kind enough to accept the invitation to fill the place as Assistant Editor. He introduces himself to our readers in this number.